

UNIVERSITI SAINS MALAYSIA

Peperiksaan Semester Pertama

Sidang Akademik 1997/98

September 1997

HGT 216 Kaedah Kuantitatif Dalam Geografi

Masa: [3 jam]

KERTAS PEPERIKSAAN INI MENGANDUNGI ENAM [6] SOALAN DI DALAM SEPULUH [10] HALAMAN.

Jawab EMPAT [4] soalan.

1. (a) Dengan memberikan contoh-contoh yang sesuai jelaskan perkara-perkara berikut:
 - (i) Ukuran kecenderungan memusat
 - (ii) Taburan kebarangkalian Normal
 - (iii) Ukuran-ukuran serakan

[15 markah]
 - (b) Mengapakah statistik penting dalam kajian Geografi.

[10 markah]
 2. (a) Sekeping syiling dilambung 500 kali, kirakan kebarangkalian jumlah kepala tidak akan berbeza daripada 250 sebanyak,
 - (i) lebih daripada 10
 - (ii) lebih daripada 30

[8 markah]
 - (b) Dapatkan luas di bawah keluk normal.
 - (i) di antara $z = 1.3$ hingga $z = 2.4$
 - (ii) di antara $z = -1.4$ hingga $z = 1.5$
 - (iii) ke kanan daripada $z = -0.8$

[6 markah]
- .../2

(c) Berdasarkan kepada Jadual 1, kirakan,

(i) min berat dengan kaedah pengkodan

[5 markah]

(ii) berat median endapan

[3 markah]

(iii) kebarangkalian berat di antara 61.5 g hingga 72.3 g

[3 markah]

Jadual 1: Berat Endapan Dasar Sungai Kelang

Berat (g)	57-59	60-62	63-65	66-68	69-71	72-74	75-77
Kekerapan	2	6	19	42	27	6	3

3. (a) Jelaskan dengan ringkas dua jenis rekabentuk persampelan rawak yang lazim diaplikasikan dalam kajian Geografi.

[10 markah]

(b) Diandaikan anda telah diminta untuk memilih sebanyak 40 ladang sampel daripada satu populasi 98 buah ladang di Daerah A (Gambarajah 1).

(i) Nyatakan rekabentuk persampelan yang akan anda gunakan dan mengapa.

[5 markah]

(ii) Huraikan langkah-langkah yang perlu anda ambil untuk mendapat 40 ladang sampel seperti yang dikehendaki.

[10 markah]

.../3

4. Dengan merujuk kepada gambarajah yang sesuai,
- (a) Jelaskan aplikasi teori kebarangkalian kepada pembolehubah bertabur secara selanjar.
[8 markah]
 - (b) Tuliskan persamaan untuk p (kebarangkalian)
[2 markah]
 - (c) Jelaskan bagaimana skor- Z dan kelok piawai normal digunakan untuk menentukan pelbagai kebarangkalian pembolehubah yang bertabur secara selanjar.
[15 markah]

5. (a) Jelaskan apakah yang dimaksudkan dengan pekali korelasi (r).
[3 markah]
- (b) Berikut adalah beberapa pasangan pembolehubah x dan y .
Nyatakan sama ada anda akan mendapat pekali korelasi r positif, negatif atau hampir 0.

<u>Pembolehubah x</u>	<u>Pembolehubah y</u>
(i) Ketinggian seseorang	Berat badan seseorang
(ii) Bilangan pengundi yang berdaftar	Bilangan pengundi yang mengundi
(iii) Altitud	Purata suhu
(iv) Kedudukan latitud sesuatu tempat	Purata suhu
(v) Jumlah isi keluarga	Tahap pendidikan keluarga
(vi) Kadar keluaran dalam negara kasar	Kadar kematian bayi
(vii) Pendapatan keluarga	Perbelanjaan keluarga
(viii) Masa (jam) belajar untuk peperiksaan	Gred Peperiksaan

[8 markah]

.../4

- (c) Dengan menggunakan gambarajah serakan berikan lakaran bagi nilai-nilai r yang berikut.

$$r = +1 \qquad r = -1 \qquad r = 0 \qquad r = -0.8$$

[4 markah]

- (d) Jadual 2 menunjukkan jumlah pendapatan keluarga dan nilai harga rumah yang dimiliki oleh 12 keluarga di suatu kawasan perumahan.

Jadual 2: Pendapatan tahunan keluarga dan nilai rumah yang dimiliki

Bil Keluarga	1	2	3	4	5	6	7	8	9	10	11	12
Pendapatan Tahunan Keluarga (RM'000)	10	17	12	16	8	24	10	22	6	23	16	20
Nilai Rumah yang dimiliki (RM'000)	44	00	70	92	70	130	56	90	50	120	114	110

Kira pekali korelasi dan uji sama ada pendapatan tahunan keluarga mempunyai pertalian yang bererti pada aras keertian 0.05. Berikan ulasan tentang jawapan yang anda perolehi.

[10 markah]

6. Analisis regresi dijalankan untuk melihat pertalian di antara gaji permulaan dengan gaji sekarang bagi sekumpulan pekerja di sebuah syarikat. Berikut adalah output daripada analisis yang telah dihasilkan melalui perisian SPSS.

Equation Number 1 Dependent Variable.. GASEK gaji sekarang

Block Number 1. Method: Enter GAPER

Variable (s) Entered on Step Number

1.. GAPER , gaji permulaan

Multiple R .88012

R.Square

Adjusted R Square .77413

Standard Error 3246.14226

.../5

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	17092967800.01977	17092967800.0198
Residual	472	4973671469.79455	10537439.55465

F = Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	T	Sig	T
GAPER	1.909450	.047410	.880117	40.276	.0000	
(Constant)	771.282303	355.471941		2.170	.0305	

End Block Number 1 All requested variables entered.

- (a) Kira nilai F yang tidak ditunjukkan dalam output tersebut.

[5 markah]

- (b) Kira nilai R Square

[5 markah]

- (c) Jelaskan bagaimana anda boleh menguji hipotesis bahawa tidak terdapat pertalian linear di antara gaji permulaan (x) dan gaji sekarang (y).

[10 markah]

- (d) Anggarkan gaji sekarang untuk dua orang pekerja sekiranya gaji permulaan masing-masing adalah RM10,000 dan RM12,000

[5 markah]

.../Lampiran 1
.../6

Lampiran 1

Persamaan

$$1. a_0 = \frac{(\sum Y)(\sum X^2) - (\sum X)(\sum XY)}{N\sum X^2 - (\sum X)^2}$$

$$a_1 = \frac{N\sum XY - (\sum X)(\sum Y)}{N\sum X^2 - (\sum X)^2}$$

$$2. r_s = 1 - \frac{6\sum D^2}{n^3 - n}$$

$$3. r = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{[N\sum X^2 - (\sum X)^2][N\sum Y^2 - (\sum Y)^2]}}$$

$$4. t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

$$5. \text{Sisihan Piawai } \sigma_x = \sqrt{\sum x^2/n - \bar{x}^2}$$

$$6. \text{Skor } Z = \frac{X - \bar{X}}{\sigma}$$

7. Ciri-ciri Taburan Binomial

$$\text{Min } \mu = Np$$

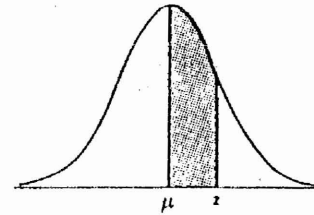
$$\text{Varians, } \sigma^2 = Npq$$

$$\text{Pencongan, } \sigma^3 = (q-p)/\sqrt{Npq}$$

$$\text{Kurtosis, } \sigma^4 = 3 + (1-6pq)/Npq$$

.../Lampiran 2
.../7

Lampiran 2 (Jadual Taburan Normal)



Z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990
3.1	.4990	.4991	.4991	.4991	.4992	.4992	.4992	.4992	.4993	.4993
3.2	.4993	.4993	.4994	.4994	.4994	.4994	.4994	.4995	.4995	.4995
3.3	.4995	.4995	.4995	.4996	.4996	.4996	.4996	.4996	.4996	.4997
3.4	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4998
3.6	.4998	.4998	.4999	.4999	.4999	.4999	.4999	.4999	.4999	.4999
3.9	.5000									

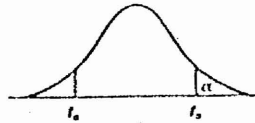
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Lampiran 3 (Jadual Nombor Rawak)

09	18	82	00	97	32	82	53	95	27	04	22	08	63	04	83	38	98	73	74	64	27	85	80	44
90	04	58	54	97	51	98	15	06	54	94	93	88	19	97	91	87	07	61	50	68	47	66	46	59
73	18	95	02	07	47	67	72	62	69	62	29	06	44	64	27	12	46	70	18	41	36	18	27	60
75	76	87	64	90	20	97	18	17	49	90	42	91	22	72	95	37	50	58	71	93	82	34	31	78
54	01	64	40	56	66	28	13	10	03	00	68	22	73	98	20	71	45	32	95	07	70	61	78	13
08	35	86	99	10	78	54	24	27	85	13	66	15	88	73	04	61	89	75	53	31	22	30	84	20
28	30	60	32	64	81	33	31	05	91	40	51	00	78	93	32	60	46	04	75	94	11	90	18	40
53	84	08	62	33	81	59	41	36	28	51	21	59	02	90	28	46	66	87	95	77	76	22	07	91
91	75	75	37	41	61	61	36	22	69	50	26	39	02	12	55	78	17	65	14	83	48	34	70	55
89	41	59	26	94	00	39	75	83	91	12	60	71	76	46	48	94	97	23	06	94	54	13	74	08
77	51	30	38	20	86	83	42	99	01	68	41	48	27	74	51	90	81	39	80	72	89	35	55	07
19	50	23	71	74	69	97	92	02	88	55	21	02	97	73	74	28	77	52	51	65	34	46	74	15
21	81	85	93	13	93	27	88	17	57	05	68	67	31	56	07	08	28	50	46	31	85	33	84	52
51	47	46	64	99	68	10	72	36	21	94	04	99	13	45	42	83	60	91	91	08	00	74	54	49
09	55	96	83	31	62	53	52	41	70	69	77	71	28	30	74	81	97	81	42	43	86	07	28	34
33	71	34	80	07	93	58	47	28	69	51	92	66	47	21	58	30	32	98	22	93	17	49	39	72
85	27	48	68	93	11	30	32	92	70	28	83	43	41	37	73	51	59	04	00	71	14	84	36	43
84	13	38	96	40	44	03	55	21	66	73	85	27	00	91	61	22	26	05	61	62	32	71	84	23
56	73	21	62	34	17	39	59	61	31	10	12	39	16	22	85	49	65	75	60	81	60	41	88	80
65	13	85	68	06	87	64	88	52	61	34	31	36	58	61	45	87	52	10	69	85	64	44	72	77
38	00	10	21	76	81	71	91	17	11	71	60	29	29	37	74	21	96	40	49	65	58	44	96	98
37	40	29	63	97	01	30	47	75	86	56	27	11	00	86	47	32	46	26	05	40	03	03	74	38
97	12	54	03	48	87	08	33	14	17	21	81	53	92	50	75	23	76	20	47	15	50	12	95	78
21	82	04	11	34	47	14	33	40	72	64	63	88	59	02	49	13	90	64	41	03	85	65	45	52
73	13	54	27	42	95	71	90	00	35	85	79	47	42	96	08	78	98	81	56	64	69	11	92	02
07	63	87	79	29	03	06	11	80	72	96	20	74	41	56	23	82	19	95	38	04	71	36	69	94
60	52	88	34	41	07	95	41	98	14	59	17	52	06	95	05	53	35	21	39	61	21	20	64	55
83	59	63	56	55	06	95	89	29	83	05	12	80	97	19	77	43	35	37	83	92	30	15	04	98
10	85	06	27	46	99	59	91	05	07	13	49	90	63	19	53	07	57	18	39	06	41	01	93	62
39	82	09	89	52	43	62	26	31	47	64	42	18	08	14	43	80	00	93	54	31	02	47	31	67
59	58	00	64	78	75	56	97	88	00	88	83	55	44	86	23	76	80	61	56	04	11	10	84	08
38	50	80	73	41	23	79	34	87	63	90	82	29	70	22	17	71	90	42	07	05	95	44	99	53
30	09	27	06	68	94	68	81	61	27	56	19	08	00	91	82	06	76	34	00	05	46	26	92	00
65	44	39	56	59	18	28	82	74	37	49	63	22	40	41	08	33	76	56	76	96	29	99	08	36
27	26	75	02	64	13	19	27	22	94	07	47	74	46	06	17	98	54	89	11	97	34	13	03	58
91	30	70	69	91	19	07	22	42	10	36	69	95	37	28	28	82	53	57	93	28	97	66	62	52
68	43	49	46	88	84	47	31	36	22	62	12	69	84	08	12	84	38	25	90	09	81	59	31	46
48	90	81	58	77	54	74	52	45	91	35	70	00	47	54	83	82	45	26	92	54	13	05	51	60
06	91	34	51	97	42	67	27	86	01	11	88	30	95	28	63	01	19	89	01	14	97	44	03	44
10	45	51	60	19	14	21	03	37	12	91	34	23	78	21	88	32	58	08	51	43	66	77	08	83
12	88	39	73	43	65	02	76	11	84	04	28	50	13	92	17	97	41	50	77	90	71	22	67	69
21	77	83	09	76	38	80	73	69	61	31	64	94	20	96	63	28	10	20	23	08	81	64	74	49
19	52	35	95	15	65	12	25	96	59	86	28	36	82	58	60	57	21	37	98	16	43	59	15	29
67	24	55	26	70	35	58	31	05	63	79	24	68	68	80	76	46	33	42	22	26	65	59	08	02
60	58	44	73	77	07	50	03	79	92	45	13	42	65	29	20	76	08	36	37	41	32	64	43	44
53	85	34	13	77	36	06	69	48	50	58	83	87	38	59	49	36	47	33	31	96	24	04	36	42
24	63	73	87	36	74	38	48	93	42	52	62	30	79	92	12	36	91	86	01	03	74	28	38	73
83	08	01	24	51	38	99	22	28	15	07	75	95	17	77	97	37	72	75	85	51	97	23	78	67
16	44	42	43	34	36	15	19	90	73	27	49	37	09	39	85	13	03	25	52	54	84	65	47	59
60	79	01	81	57	57	17	86	57	62	11	16	17	85	76	45	81	95	29	79	65	13	00	48	60

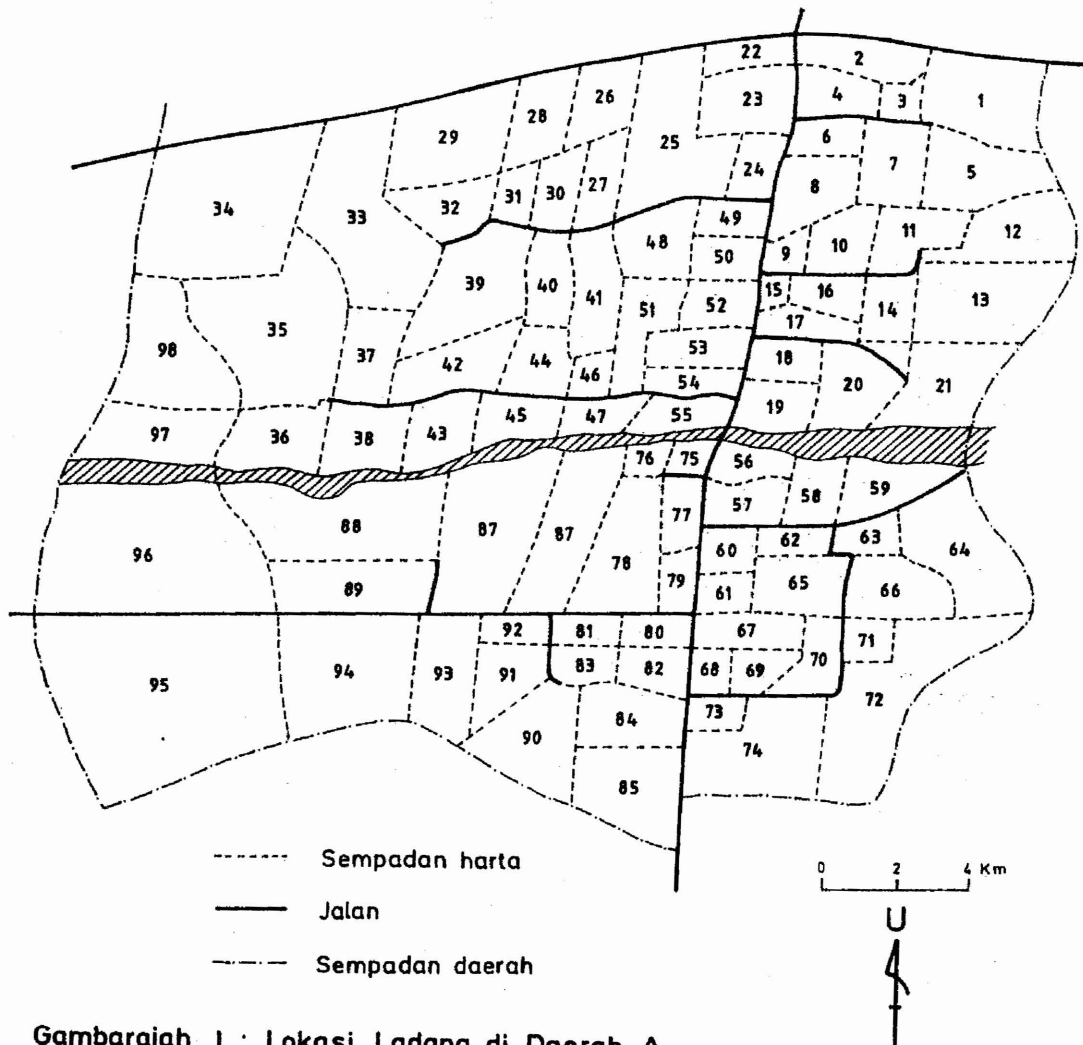
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Lampiran 4 (Jadual T)



v	Level of significance (P)										Level of significance (P)						v
	.90	.80	.70	.60	.50	.40	.30	.25	.20	.10	.05	.025	.02	.01	.005	.001	
1	.158	.325	.510	.727	1.000	1.376	1.963	2.414	3.078	4.314	5.024	5.646	6.388	7.879	9.901	12.938	1
2	.142	.289	.445	.617	.816	1.061	1.386	1.601	1.886	2.920	3.403	3.919	4.477	5.591	7.378	9.598	2
3	.137	.277	.421	.584	.765	.978	1.250	1.423	1.638	2.353	2.842	3.348	3.895	4.753	6.388	8.450	3
4	.134	.271	.414	.569	.741	.941	1.190	1.344	1.533	2.132	2.627	3.133	3.679	4.537	6.078	8.141	4
5	.132	.267	.408	.559	.727	.920	1.156	1.301	1.476	2.015	2.511	3.017	3.563	4.421	5.962	8.025	5
6	.131	.265	.401	.553	.718	.906	1.134	1.273	1.440	1.943	2.447	2.953	3.499	4.357	5.908	7.971	6
7	.130	.263	.402	.549	.711	.896	1.119	1.254	1.415	1.895	2.399	2.905	3.451	4.309	5.860	7.923	7
8	.130	.262	.399	.546	.706	.889	1.108	1.240	1.397	1.860	2.365	2.871	3.417	4.275	5.826	7.885	8
9	.129	.261	.398	.543	.703	.883	1.100	1.230	1.383	1.833	2.342	2.848	3.394	4.253	5.803	7.862	9
10	.129	.260	.397	.542	.700	.879	1.093	1.221	1.372	1.812	2.228	2.834	3.380	4.239	5.789	7.849	10
11	.129	.260	.396	.540	.697	.876	1.088	1.214	1.363	1.790	2.201	2.593	3.100	4.197	5.766	7.826	11
12	.128	.259	.395	.539	.695	.873	1.083	1.209	1.356	1.782	2.179	2.560	3.081	4.178	5.747	7.807	12
13	.128	.259	.394	.538	.694	.870	1.079	1.204	1.350	1.771	2.160	2.533	3.060	4.158	5.728	7.788	13
14	.128	.258	.393	.537	.692	.868	1.076	1.200	1.345	1.761	2.145	2.510	3.042	4.140	5.710	7.770	14
15	.128	.258	.393	.536	.691	.866	1.074	1.197	1.341	1.753	2.131	2.490	3.022	4.122	5.692	7.752	15
16	.128	.258	.392	.535	.690	.865	1.071	1.194	1.337	1.740	2.120	2.473	3.001	4.104	5.674	7.734	16
17	.128	.257	.392	.534	.689	.863	1.069	1.191	1.333	1.740	2.110	2.458	2.987	4.086	5.656	7.716	17
18	.127	.257	.392	.534	.688	.862	1.067	1.189	1.330	1.734	2.101	2.445	2.972	4.068	5.638	7.698	18
19	.127	.257	.391	.533	.688	.861	1.066	1.187	1.328	1.729	2.093	2.433	2.959	4.050	5.620	7.680	19
20	.127	.257	.391	.533	.687	.860	1.064	1.185	1.325	1.725	2.086	2.423	2.948	4.032	5.602	7.662	20
21	.127	.257	.391	.532	.686	.859	1.063	1.183	1.323	1.721	2.080	2.414	2.931	4.014	5.584	7.644	21
22	.127	.256	.390	.532	.686	.858	1.061	1.182	1.321	1.717	2.074	2.406	2.919	4.000	5.566	7.626	22
23	.127	.256	.390	.532	.685	.858	1.060	1.180	1.319	1.714	2.069	2.398	2.907	3.982	5.548	7.608	23
24	.127	.256	.390	.531	.685	.857	1.059	1.179	1.318	1.711	2.064	2.391	2.892	3.964	5.530	7.590	24
25	.127	.256	.390	.531	.684	.856	1.058	1.178	1.316	1.708	2.060	2.385	2.885	3.946	5.512	7.572	25
26	.127	.256	.390	.531	.684	.856	1.058	1.177	1.315	1.706	2.056	2.379	2.879	3.928	5.494	7.554	26
27	.127	.256	.389	.531	.684	.855	1.057	1.176	1.314	1.703	2.052	2.373	2.873	3.910	5.476	7.536	27
28	.127	.256	.389	.530	.683	.855	1.056	1.175	1.313	1.701	2.048	2.368	2.867	3.892	5.458	7.518	28
29	.127	.256	.389	.530	.683	.854	1.055	1.174	1.311	1.699	2.045	2.364	2.862	3.874	5.440	7.500	29
30	.127	.256	.389	.530	.683	.854	1.055	1.173	1.310	1.697	2.042	2.360	2.857	3.856	5.422	7.482	30
40	.126	.255	.388	.529	.681	.851	1.050	1.167	1.303	1.684	2.021	2.329	2.823	3.804	5.360	7.400	40
60	.126	.254	.387	.527	.679	.848	1.046	1.162	1.296	1.671	2.000	2.299	2.800	3.760	5.300	7.340	60
120	.126	.254	.386	.526	.677	.845	1.041	1.156	1.289	1.658	1.980	2.270	2.758	3.690	5.240	7.280	120
∞	.126	.253	.385	.524	.674	.842	1.036	1.150	1.282	1.645	1.960	2.241	2.726	3.660	5.200	7.240	∞

.../Gambarajah 1
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Gambarajah 1 : Lokasi Ladang di Daerah A